MASS DEATHS OF SEA TURTLES ON THE MONTEBELLO ISLANDS, OCTOBER 1953, FOLLOWING OPERATION HURRICANE

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The following note is derived from a conversation I had with Mr Max Kimber in December 2002, and with Mr Colin Bromfield in January 2003. Although nearly 50 years after the events described, both men's recollections were clear and vivid. Despite the absence of scientific corroboration, it seems that a large number of sea turtles (probably Green Turtles, *Chelonia mydas*) died in the vicinity of the Montebello Islands during the year following the October 1952 British 'Hurricane' atomic weapons test.

In 1952, Max Kimber was seaman on board HMAS *Mildura*, a wartime corvette serving as a naval reserve training vessel. The *Mildura* was detailed by the Royal Australian Navy to assist the British Operation Hurricane taskforce establish Britain's first nuclear weapon test on the Montebello Islands, 100 kilometres off the coast of north-western Western Australia. The Hurricane test involved the detonation of a 25 kilo-tonne plutonium device nine metres below water level in the hold of HMS *Plym*, a River-class frigate, moored in 12 metres of water approximately 400 metres off Main Beach on the western side of Trimouille Island, in Bunsen Channel (Figure 1).

The blast, on the morning of October 3 1952, vaporised most of HMS *Plym* and lifted thousands of tonnes of water and sediment into the air. The test was considered 'dirty', even by the standards of the time (Cathcart 1994). The water and sediment raised by the blast was contaminated with fission products from the plutonium device, and much of this fell onto Trimouille Island. Contamination also occurred on islands to the north-west of Trimouille, including North West, Primrose, Bluebell, Carnation, Kingcup, Gardenia and Jonquil Islands (Figure 1). Clearly much of the contamination fell in surrounding waters, both within the Montebello 'lagoon', and into the sea to the north north-west and north-east of Trimouille Island.

The following year, in June 1953, Mr Kimber transferred to HMAS *Fremantle*, a Royal Australian Navy minesweeper. HMAS *Fremantle* and her crew spent two weeks in the Montebello group in October 1953, assisting British scientists in monitoring the

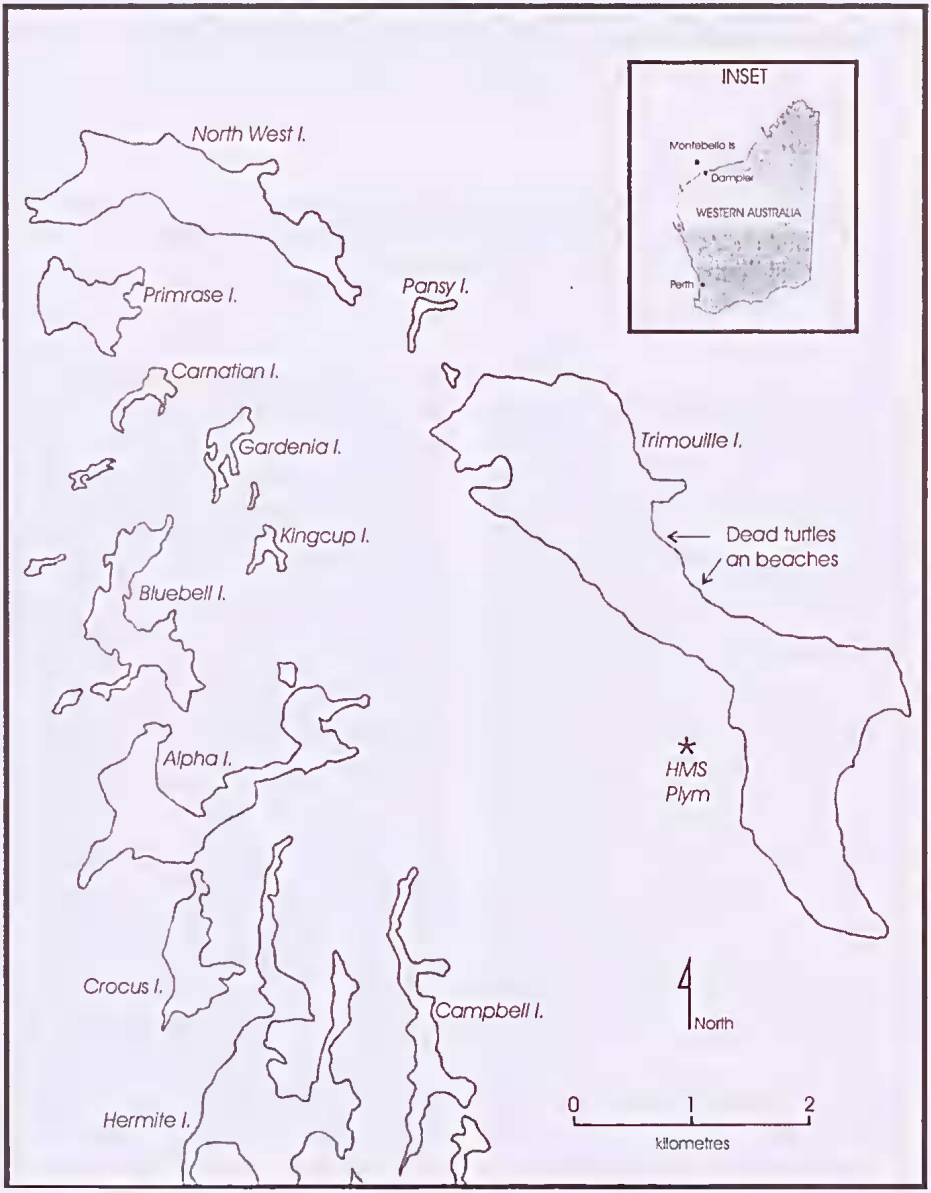

Figure 1. A map of the northern Montebello Islands, showing the approximate position of *HMS Plym* (*) at the time of the British Hurricane nuclear test. The beaches where many dead turtles were observed are indicated by arrows.

aftermath of the Hurricane test. During a day off, Mr Kimber and a colleague sailed around Trimouille Island in a small sailboat. About half way around the island, south of Pitt Point, Mr

Kimber and his companion were forced to land to make repairs to their boat's rudder.

On these beaches, Mr Kimber found large numbers of dead sea-turtles (Figure 1). He stated that for the entire length of the beach (two beaches, each about 500 metres long), dead turtles were 'piled three or four deep, in a layer from six to ten feet (two to three metres) wide'. Turtles of all sizes were represented; some were too large for one man to lift, while others were clearly hatchlings, being 'small enough to fit in one hand'.

Mr Kimber recalls that while the animals had clearly been dead for some time, there was enough rotting material still on the carcases to make them offensive. He estimated that they had been on the beach for some months. They all appeared to be in a similar stage of decomposition, and he saw none were obviously recently deceased.

After repairing their boat, Mr Kimber and his companion resumed their journey, taking a medium-sized carapace (about 0.5 metres long) as a souvenir. They towed it behind the boat in an attempt to clean it. Once back on board HMAS *Fremantle*, the shell was found to be radioactive, and was immediately disposed of overboard.

The presence of hatchlings among the dead turtles indicates that these animals died during or after the 1952–53 summer breeding season (usually between October to February). Their presence on the northern beaches of Trimouille, outside the Montebello 'lagoon' (Bunsen Channel) where HMS *Plym* was destroyed, and the radioactive condition of the shell souvenired by Mr Kimber, indicates that radiation may have been the cause of death, rather than blast effects of the explosion. These beaches are located just 1 – 1.5 kilometres north of HMS *Plym*'s final mooring.

It will never be possible to know the exact numbers of dead turtles that Mr Kimber saw on these beaches. Mr Kimber claimed that he saw 'tens of thousands', but this may have been a personal reaction to what was an overwhelming and distressing sight. However, it would appear that a great many turtles were deposited on these beaches, either dead or dying, at some time in the interval following the October 1952 test and Mr Kimber's visit in October 1953. An estimate of the number can be made from assuming that a two metre section of beach might have contained 10 dead turtles (a two metre length of beach, three metres wide, with turtles of all sizes piled three or four deep). Each beach in this area is approximately 500 metres long, resulting in an estimate of 5000 dead turtles. Mr Kimber has a strong recollection that the smell was very bad, and was still noticeable when offshore in the boat.

Recent aerial surveys of sea turtles on the Montebellos (K. Pendoley, pers. comm.) indicate that the beaches where Mr Kimber saw these dead turtles are those that have the largest aggregations of Green Turtle (*Chelonia mydas*)

nesting anywhere in the Montebellos. Hundreds of animals have been seen within these embayments during recent breeding seasons. Aggregations of Green Turtles begin in October, and continue through the summer. Exploding the 'Hurricane' device in October may well have affected large numbers of turtles aggregating in the area for the coming breeding season. Groups of dead turtles are sometimes seen near nesting beaches – Kellie Pendoley observed 11 mature dead Green Turtles on a beach at Trimouille Island in November 1999, and blowouts on Barrow Island contain the remains of scores of turtles which have become disoriented and perished there over many years. However, these natural phenomena are clearly nothing like that described by Max Kimber.

Mr Kimber does not recall seeing any similar concentrations of dead turtles at other locations during his time at the Montebellos. He does not recall seeing any other species such as dolphin, dugong, fish, sharks or any other animals amongst the turtles on Trimouille Island. Although he recalls a few of the scientific staff showing some interest in the radioactive turtle carapace he souvenired, he does not recall any official interest in the dead turtles on Trimouille. No unofficial photography of the Hurricane test area by RAN personnel was allowed.

Colin Bromfield was also assigned to HMAS *Fremantle* in the 1950s. Mr Bromfield recalled seeing large numbers ('hundreds') of turtle hatchlings moving down to the water on the southern part of Main Beach, close to where HMS *Plym* had been moored, during a visit to the Montebellos in the summer of 1954. This indicates that, despite the immediate effects of the Hurricane test as described by Max Kimber, there were still turtles nesting successfully on Trimouille Island within two years of the test. Mr Bromfield discussed the hatchlings with a British scientist, who offered the opinion that the hatchling turtles may have been advantaged by the tests, since most of the seabirds which might have preyed upon them had apparently disappeared since the Hurricane blast.

The impact of this event on local Green Turtle populations was probably severe. As it takes between 30 and 50 years for a Green Turtle to become sexually mature, recruitment into the breeding population impacted by Operation Hurricane would have occurred after 1982. There is no way to directly measure the impact of the Hurricane tests on the Montebello Green Turtle population, but it is possible that the current population has still not returned to pre-Hurricane numbers.

REFERENCES

CATHCART, B. 1994. *Test of Greatness: Britain's Struggle for the Atom Bomb.* John Murray, London.